PINE HILL PRESERVE

EDUCATION AND OUTREACH

Final Report

Presented by:
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To:
The CVPIA Habitat Restoration Program

March 31, 2012

Introduction

During September 2009, the Central Valley Project Improvement Act (CVPIA) Habitat Restoration Program (HRP) provided funds to the Pine Hill Preserve (Preserve) through an Interagency Agreement 80270-9-H517 (IA) between the U.S. Fish and Wildlife Service (FWS) and the U.S. Bureau of Land Management (BLM) to develop an Education and Outreach Plan (E&O) and to implement activities for the recovery of five federally listed plant species at the Pine Hill Preserve (Preserve). The Preserve's mission is to conserve in perpetuity the rare plant species and plant communities of the western El Dorado County gabbro soil formation. One of the Preserve's goals is to provide the local community and general public with recreational, educational, and outreach opportunities related to the conservation of the rare plants and their habitats.

The 4,750-acre Preserve was established to protect habitat for eight rare plant species growing on gabbro soils, including five that are federally listed as Endangered or Threatened and four that are endemic to western El Dorado County. Land protection and management activities at the Preserve, as well as funding to conduct these activities, are achieved by ten partners working together to protect rare plants through a Cooperative Management Agreement (CMA). Members of the CMA include the American River Conservancy (ARC), California Department of Fish and Game (CDFG), California Department of Forestry and Fire Protection (CalFire), El Dorado County (EDC), El Dorado County Water Agency (EDCWA), El Dorado Irrigation District (EDID), the BLM, the U.S. Bureau of Reclamation (BOR), and the FWS. The California Native Plant Society (CNPS), although not a signatory party of the CMA, works together with the partners and provides direction for conservation and management activities at the Preserve.

This final report describes E&O activities at the Preserve from June 2009 through March 2012 and is presented to the CVPIA-HRP members for their review and approval. Activities conducted during this time include preparing the Pine Hill Preserve Education and Outreach Plan; creating and distributing brochures, posters, displays, and other outreach materials; constructing and maintaining signs, trails and gates; guiding public tours; building and updating Internet sites; and implementing other tasks as described in the scope of activities for the IA and the Preserve's E&O Plan. The E&O activities conducted at the Preserve conformed to activities proposed in the 2008 Pine Hill Preserve Management Plan and were consistent with the long term goals of the 2008 BLM Sierra Resource Management Plan. Implementation of the E&O activities described in the IA also helped to accomplish recovery tasks 1.2.1, 2.2, 3.3, 4.2, 6.1, 6.2, and 7 as listed in the FWS 2002 "Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills".

Pine Hill Preserve Education and Outreach Plan

Develop a plan to guide outreach activities and provide the public with educational, recreational and volunteer opportunities at the Preserve. Between July and December 2009, the Preserve staff created a plan to set the basis for the implementation of E&O activities at the Preserve. For decades, the Preserve area had been a traditional location for botanical and environmental interpretation. The Preserve provides thousands of acres of natural habitat where functional ecological systems can be observed, studied, and managed. Eight rare plants (Figure 1), including five federally and state listed and four that are endemic to the Pine Hill area, exist on the unique soils and habitat types of the Preserve system. The Preserve contains exceptional plant species diversity: 740 distinct species have been recorded in the Preserve biological region. Hence about 10% of all native plant species known in California are represented in a small portion of the state. This great variety of plants is just 30 miles from Sacramento and presents outstanding opportunities for the public to visit some of California's biological treasures.

Figure 1. From top left to bottom right: the federally and state listed Stebbins' morning glory, Pine Hill flannelbush (endemic), Pine Hill ceanothus (endemic), El Dorado bedstraw (endemic), and Layne's butterweed; and the rare El Dorado mule-ears (endemic), Red Hills soparoot, and Bisbee Peak rush-rose

During recent years and after the creation of the Preserve system, CNPS, ARC, and the Preserve staff have conducted E&O activities on Preserve lands. The biologically unique characteristics of the Preserve and its close proximity to human populated areas make the Preserve an important place for implementation of E&O activities. Moreover, interaction with the general public builds support for the Preserve's mission. All these activities contribute to the conservation of the gabbro soil rare plants growing on Preserve lands, and interaction between the public and Preserve features may play a determinant role in the recovery and conservation of the rare plants and other species supported on Preserve lands. The Preserve's E&O plan was included in the first report presented to the CVPIA on December 31, 2009 (Figure 2). The Plan describes E&O activities to be implemented at the Preserve to achieve the following objectives:

1) Provide public outreach/information about the gabbro soil rare plants and their habitats to promote protection, conservation and recovery of the rare plants;

2) Communicate to the public the benefits and risks of fuels management and prescribed fire in relation to habitat enhancement of the rare plants;

3) Prevent activities at the Preserve that damage rare plants and their habitat, such as motorized trespass and trash dumping;

4) Provide the local community and public in general with recreational, educational, outreach and volunteer opportunities, including guided and non-guided tours, teaching, interpretation, research, habitat restoration and other activities compatible with the Preserve's mission.

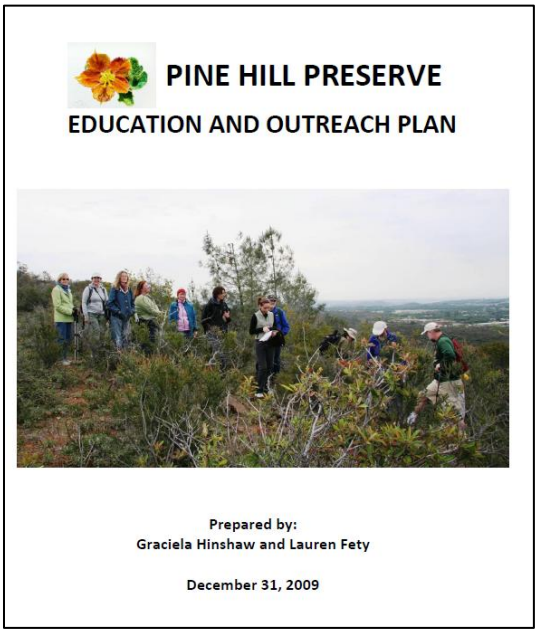


Figure 2. Pine Hill Preserve E&O plan

The E&O plan also outlined strategies to increase public awareness and understanding of the gabbro soil rare plant conservation issues, encourage sustainable recreation in suitable areas of the Preserve, and promote collaboration with regional partners to help achieve the Preserve's mission. Priority actions described in this E&O Plan focused on increasing community knowledge of the Preserve and its unique features, both at local and regional levels.

Education and Outreach Activities

According to stipulations in the IA, funds from the BOR and the FWS were used to implement E&O activities as described in the proposal for the project signed on November 14, 2008 and in the objectives described in the E&O plan. These E&O activities are listed in the IA and include the following:

Provide public outreach/information about the gabbro soil rare plants and their habitats to promote protection, conservation and recovery of the rare plants. The creation and distribution of Preserve brochures was an important task within this activity. The brochures increase public awareness of the rare plant species; describe recreation and educational opportunities for the community; and communicate management decisions that promote conservation of the rare plants.

Preserve staff, CMA partners, the CVPIA staff, volunteers, and a private contractor contributed to content and design of the updated Preserve brochures during 2010. Twenty-five hundred copies of the new Preserve brochures were printed in October 2010; since then, distribution of hundreds of these brochures has taken place at outreach events, training sessions, and field visits. The brochures have been distributed among the different Preserve partners and to the general public. A PDF copy of the brochure is provided in Attachment 1 of this report.

The creation and regular maintenance of the Preserve's websites has been important for providing public outreach and information about the gabbro soil rare plants. During 2010, the Preserve staff worked with volunteers and the BLM Information Technology staff to create, update, and redesign the Preserve websites. The Preserve's official website ***www.pinehillphp.org*** and the BLM's web page for the Preserve (***http://www.blm.gov/ca/st/en/fo/folsom.html***) proved to be main sources of information for the general public. During 2011, volunteers and staff of both the Preserve and BLM managed, updated, and expanded the content of both websites. The electronic address ***pinehillphp@gmail.com*** and the addresses linked to the BLM's webpage provided a primary means of communication used by the public to contact Preserve staff. On the websites, the public found information to register for guided field tours in the spring and to participate in restoration projects that took place during 2010 and 2011. More details about the development and implementation of these websites can be found in the periodical reports for this IA submitted to CVPIA during 2010 and 2011.

During 2010 and 2011, the Preserve staff also created a rare plant poster and, after input and approval by the CVPIA and CMA regarding content and design, 500 copies of the poster were printed during December 2011. The poster provides information about the Preserve and the rare plants on the back. Copies of the poster have been distributed to the Preserve partners and at various education and outreach events. A PDF copy of the front of the poster is provided in Attachment 2 of this report.

During the springs of 2010 and 2011, amateur and professional photographers provided the Preserve staff with materials to be used for education and outreach purposes. One CNPS/Audubon Society member provided dozens of rare plant and other wildflower photos taken during different guided field tours of the Preserve (Figure 3) and an updated list of plants for the Preserve lands and surrounding vicinity. Some of these materials were used during the guided field tours and are also being used to support outreach efforts, including the preparation of new slide shows. The plant lists and additional information about these materials can be found in the 2010 and 2011 reports to the CVPIA for activities conducted under the scope of the IA.

Figure 3. Pine Hill Preserve wildflowers (Spring 2011). Photos by Bob Stahmer

During 2010 and 2011, two high school students worked with Preserve staff to design rare plant educational materials (including coloring pages and word puzzles) for children grades K-8. The students also participated in a guided tour to the Preserve during April 2011 and created drawings of native plants. Materials produced by the volunteers will be posted at the Preserve websites and hard copies will be distributed as outreach materials. Some of the produced materials are included in Attachment 3. Final versions of these outreach materials will be available for downloading at the Preserve's webpages and will be distributed to schools and during outreach events, including the 100th California Girl Scouts Anniversary gathering that will take place in Sacramento during April 2012.

During 2011, the Preserve staff prepared a poster display that was presented during Career Day at the Union Mine High School in El Dorado; this display is continuously being used at different events to promote knowledge of the Preserve and the gabbro soil rare plants. Panels of the display can be modified and updated to accommodate different forum needs.

From 2009 through 2012, the Preserve staff prepared PowerPoint presentations to promote knowledge about protection and habitat management for the gabbro soil rare plants. The presentations were brought to different forums including meetings for chapters of the Audubon Society and CNPS; technical and scientific meetings for the California Northern Botanical Society and CNPS; a chapter meeting of the Master Gardener's; and different groups of students. More details of these presentations are described in CVPIA 2010 and 2011 periodic reports for activities under the scope of the IA.

Communicate to the public the benefits and risks of fuels management and prescribed fire in relation to habitat enhancement of the rare plants. The rare plants at the Preserve have evolved with the natural periodic occurrence of fire. Currently, the alteration of appropriate fire regimes in western El Dorado County is a main threat to the survival of rare plants and their habitats. Because most of the Preserve lands are surrounded by urban or residential development, reduction of fuel loads at the Preserve using a combination of mechanical methods and prescribed burns is a recommended alternative to enhance habitat for the rare plants. Providing brochures and other educational materials to inform Preserve neighbors about fire ecology and the need for fuels management activities at the Preserve are essential for building support in the surrounding communities.

During 2010 and 2011, the Preserve staff and the BLM fire and fuels staff worked on the design of a new Preserve fuels management brochure. This brochure is presented to the CVPIA members for their review and approval as Attachment 4 of this report. Once the design and content of the brochure is approved by the CVPIA, the Preserve staff will submit the electronic files of the brochure to a local contractor for printing. Distribution of the printed brochures will be accomplished in a similar manner as the distribution of Preserve brochures and other outreach materials.

Other fuels management outreach materials were created by volunteers working on different Preserve projects (Figure 4). Volunteers and the BLM Fuels and Fire staff created a collage of photos with fuels reduction activities conducted by the AmeriCorps at the Preserve during the months of January through March, 2010. The BLM will

reproduce the collage in a poster format and distribute it to the public to contribute to fire safety education and to support fuels management activities at the Preserve.

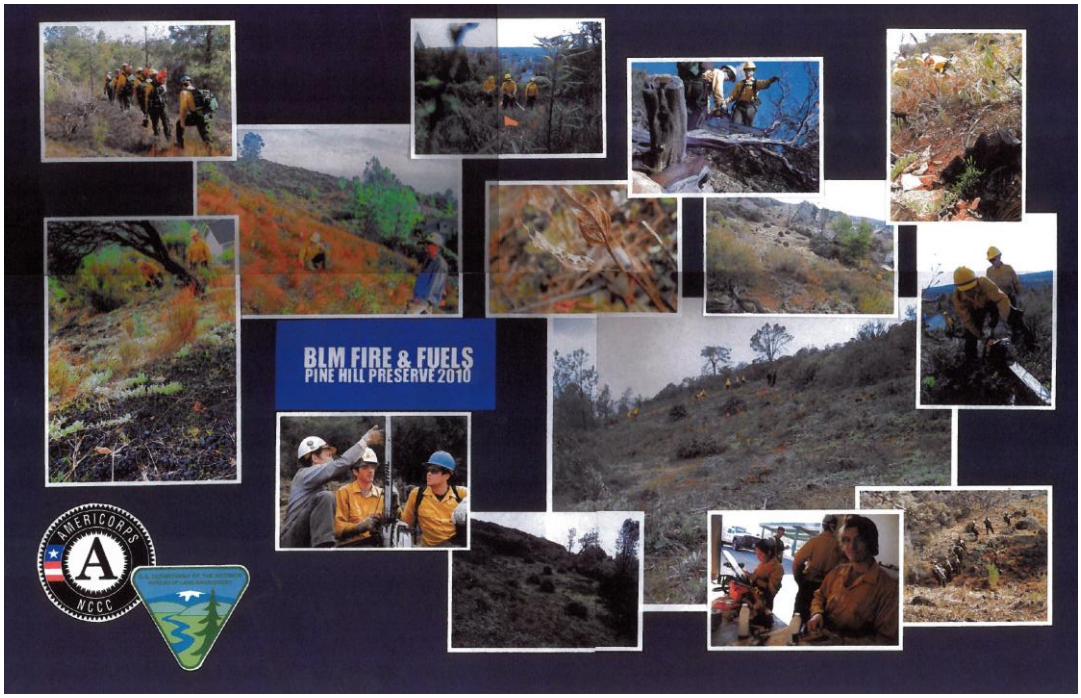


Figure 4. Photo collage of fuels management activities conducted at the Preserve during 2010, created by the BLM Fuels and Fire staff.

From 2009 through 2012, the Preserve and BLM staff, CalFire, other Preserve partners, and volunteers have conducted fuels management activities at the Preserve to enhance habitat for rare plants and provide a defensible space for residents in the Wildland Urban Interface (WUI) immediately adjacent to Preserve lands. Implementation of fuels management along the most critical WUI areas at the Preserve has been successful thanks in great part to the E&O tasks conducted by the Preserve and BLM staff. These tasks have included conducting public meetings, mailing information about scheduled prescribed burns, answering e-mail and phone calls, contacting neighbors directly at their homes, attending mobile information booths during burning activities, placing street signs and information boards in the neighborhoods where burning activities took place, and distributing Preserve brochures and informational materials about prescribed burning at the Preserve and about the BLM's fuels management program (Figure 5).

During 2011, Preserve staff and volunteers and the BLM fuels and fire staff conducted fuels management E&O in the communities of Cameron Park, Shingle Springs, and Rescue. Public E&O took place prior to and during the implementation of prescribed pile burnings at the Cameron Park and Pine Hill units of the Preserve during the months of April and May. Prescribed burning of vegetation piles was conducted in coordination

with the BLM, CalFire, AmeriCorps and Hot Shot crews, the FWS, the EDC Air Quality Management District, and with the help of Preserve volunteers.

Figure 5. Mobile information booth (left) and street signs (right) for fuels reduction activities conducted at the Cameron Park unit of the Preserve (center) during April 2011

The BLM's website was a main source of public information regarding management of fuels and prescribed burning at the Preserve from April-June 2011. Information also included a hotline number ***(916-941- 3155)*** through which Preserve neighbors and interested parties accessed information about management activities, including prescribed burns conducted at the Preserve during 2011. Details of tasks conducted under this activity are described in the different reports submitted to the CVPIA during the years 2010 and 2011.

Prevent activities at the Preserve that damage rare plants and their habitat, such as motorized trespassing and trash dumping. The proximity of the Preserve to urban and suburban development provides the surrounding communities with opportunities to enjoy natural lands. However, this proximity also allows for some abuses of the natural lands, such as illegal off-road driving and trash dumping. The preparation and installation of signs helped identify protected lands and provide information about restricted uses at the Preserve (Figure 6). Signs also provided information about the Preserve's partners and how to contact the Preserve management for questions and/or report of illegal activities.

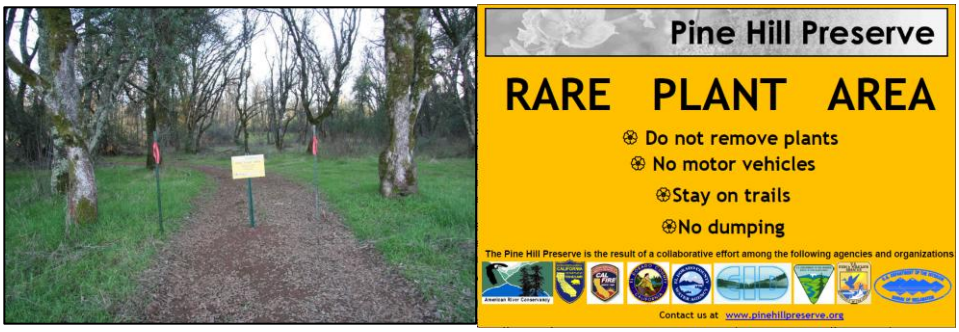


Figure 6. Volunteer tasks at the Preserve include placing posts and signs and cleaning trash at recently acquired Preserve parcels (left). A Preserve sign (right)

During 2010 and 2011, placement of Preserve signs in the eastern portion of the Salmon Falls unit, strategic areas of newly acquired lands, and other Preserve areas was completed to identify Preserve lands and inform the public about restricted uses. Approximately 40 signs were placed and/or replaced on Preserve lands during 2010, and several dozen signs were also placed during 2011. During 2010, one gate was constructed to protect habitat and allow for equipment access near the Verano Lane area, at the Cameron Park unit of the Preserve, and the two main access gates at newly acquired Kanaka Valley lands were repaired. In addition, two entrances for people to access the Kanaka Valley area were also placed during 2011. All these tasks were conducted by the Preserve and BLM's recreation staff with the help of volunteers.

Additionally, during 2010 and 2011, the Preserve staff and interns worked closely with the BLM's Law Enforcement and Special Agents and Preserve neighbors to detect, document, and remediate effects of illegal activities conducted at the Preserve. Illegal activities included trespass of Preserve lands using motorized vehicles, trash dumping, and cultivating marihuana gardens. Tasks conducted by Preserve staff and interns in coordination with BLM's Law Enforcement and interagency Special Agents included flying over Preserve lands, conducting surveys in areas of rare plants, spot checking of problematic areas reported by neighbors, cleaning of trash and debris left behind by illegal activities, and attending interagency coordination meetings. Other tasks conducted during 2010 and 2011 related to this activity are described in the periodic reports submitted to the CVPIA during this time period.

Provide the local community and public in general with recreational, educational, outreach and volunteer opportunities, including guided and non-guided tours, teaching, interpretation, research implementation, habitat, restoration and other activities compatible with the Preserve's mission. Guided spring field trips were conducted at the Preserve during 2010 and 2011. There is usually an excellent response from the public to these events. Public access to Preserve lands is rather limited throughout the year because direct access to Preserve lands is restricted to a few sites. The guided fieldtrips provide an opportunity for access to an array of Preserve sites that are not commonly available to the public (Figure 7). Preserve staff and volunteer naturalists continue to lead the annual series of fieldtrips to view spring blooming at the Preserve. Fieldtrips combined ornithology and botany as themes and were arranged to visit one location per day, but the series included visits to several different units thorughout the season. The guided trips during 2010 and 2011 were coordinated by the Preserve staff. Continuing to conduct and expand the guided fieldtrips is a high priority for public outreach.

Figure 7. Guided field tour to the Salmon Falls unit of the Preserve

During 2010 and 2011, the Preserve staff also guided visits for several school groups from different school districts (Figure 8). The proximity of the Preserve to urban areas helps to promote these visits and allow for environmental education about rare plant conservation and chaparral ecosystems (Figure 9). Fieldtrips for school-age children have been conducted at the Cameron Park unit for the past several years. These fieldtrips are conducted by Preserve staff, volunteers, and teachers and often include help from parents.

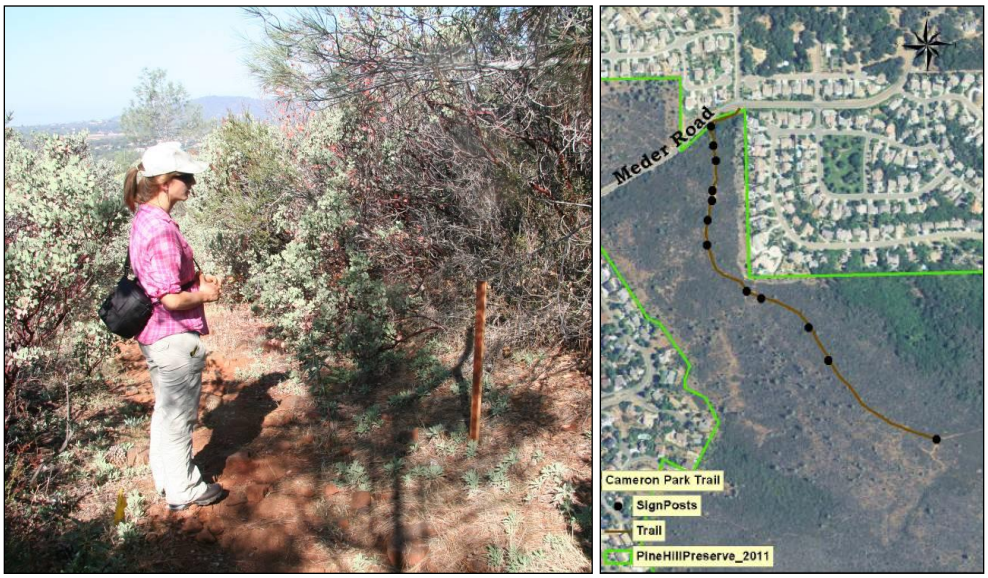
Figure 8. Students from the Elk Grove district learning about the rare plants

Figure 9. Young Botanist at the Pine Hill unit during a field trip

During 2010 and 2011, groups of botanists and botany students with the UC Davis Center for Plant Diversity participated in visits to Kanaka Valley and the Salmon Falls unit of the Preserve. The students provided input to the existing Preserve's plant list and also collected plants for herbarium specimens to be deposited at the John M. Tucker, Beecher Crampton, and the Pine Hill Preserve herbaria. A total of 67 plant vouchers were provided to the Preserve during 2011;

these specimens will be added to the existing Preserve collection. Preparation of the herbarium specimens and the creation of a database was done by interns and UC Davis student volunteers. During 2011, a group of Sacramento State University students visited the Cameron Park unit of the Preserve and contacted the Preserve staff because they are interested in forming a Habitat Restoration Team. During the visit the Preserve staff discussed the natural history of the Pine Hill area, the Preserve's mission, and potential projects the students can help conduct. Students were also able to visit sites with the rare plants and specific projectsareas where some restoration activities have taken place.

To enhance the public visit experiences along a trail in the Cameron Park unit, the Preserve staff installed cedar posts to mark the location of 13 different stations (Figure 10) along the trail. . A map of the trail, including the location of the stations, was created (Figure 11) by PHP staff. The stations will provide information for a self-guided tour along a segment of the trail where seven of the eight rare plants can be observed. The trail is used year round mostly by local people and, during the spring of every year, tours guided by PHP staff and volunteer naturalists bringing people from the whole region to this PHP unit. The stations indicate highlights along a 1/3-mile segment of the trail such as unique soils, unique habitat, rare plants, transition zones, and other features. The stations are identified by metallic numbers placed on the posts.



Figures 10 and 11. Posts to mark stations along a self-guided trail at the Cameron Park unit (left), and map with the location of the trail (right)

The PHP staff is working on creating informative, low-cost pamphlets with descriptions of the numbered stations and features that can be observed at different times of the year. It is expected that information to be included in the pamphlets will be changed often to accommodate both for variation in the vegetation at different times of the year and across a

span of multiple years. The pamphlets and copies of the maps will be deposited in a box at the entrance of the trail near Meder Road.

During 2010 and 2011, the Preserve lands provided habitat restoration opportunities for volunteers. Participating groups included the AmeriCorps, the local 4H group, the Girl Scouts of America, Native American groups, Preserve partners, students, and individual members of the public. All individuals and groups of volunteers were assisted by the Preserve staff and interns. For the past two years groups of volunteers helped to clean up trash and pull weeds at the Salmon Falls and Cameron Park units and other areas managed by the Preserve staff. During April 2010, a group of volunteers and the AmeriCorps helped to remove old fence lines and signs, pull weeds and trim shrubs along trails at Kanaka Valley (Figure 12). During the spring and summer of 2010, through and in partnership with the local 4H GPS club, the roads at recently BLM acquired properties were mapped (Figure 13).

Figure 12. Members of the AmeriCorps helping to remove old signs from Kanaka Valley during April 2010

Figure 13. Members of the 4H GPS club at the Kanaka Valley during February 2010

Other restoration tasks at the Preserve during 2010 included weed control in the northern portion of the Salmon Falls unit, conducted by the Preserve staff with the help of an AmeriCorps crew and trail maintenance at the Cameron Park unit, conducted by Preserve staff with the help of fuels maintenance volunteers and neighbors. During 2011, Preserve neighbors and a volunteer with the BLM's fire and fuels program helped to maintain a ¾-mile section of a Cameron Park trail (including the segment where stations for the self-guided trail were placed) by cutting branches from shrubs hanging over the trail. The AmeriCorps crews also helped to restore habitat at the Preserve during the months of January through March of 2011. Their tasks included trash cleaning and chopping and chipping wood piles deposited on Preserve lands from previous fuels management projects. The AmeriCorps will continue to work on Preserve lands during 2012, assisting with wood

pile burning at the Cameron Park unit and with restoration activities at the Pine Hill unit of the Preserve.

From 2010 to 2012, students with an interest in natural resources interned with the Preserve for several weeks up to several months. Participating students learn about rare plant conservation, facilitate monitoring of rare plant habitat, and help to implement diverse management and restoration tasks.

During 2010, the Preserve staff was contacted by Tony Cervantes, director of the Native Americans Temporary Assistance for Needy Families Program (TANF). The program provides temporary assistance to needy families of the Miwok, Maidu, and other tribes in the Shingle Springs area. Mr. Cervantes directs a very active program where different tribal groups, agencies, and private non-profit organizations work together to provide opportunities for volunteers to learn about, protect, and restore natural ecosystems. During September of that year, the Preserve staff met with participants of the program and presented a slide show to explain the Preserve's mission and discuss the areas where both the TANF and the Preserve could benefit from working together. Outcomes of the meeting and presentation included scheduling restoration activities with volunteer TANF groups on Preserve lands for the years 2010 and 2011.

During 2010, a group of TANF volunteers and BLM and Preserve staff pulled weeds along a portion of a newly created section of the South Fork American River (SFAR) trail on Preserve lands. The group also worked on the construction of water bars and placement of other structures to prevent soil erosion (Figure 14). During 2011, the PHP staff continued to meet and work with members of the TANF Program. Restoration activities conducted by this group of volunteers during 2011 included removing trash and placing barriers, signs, and posts to identify PHP lands and to prevent trespass incidents in newly acquired lands in the Cameron Park area (Figure 15). TANF members provided volunteer

Figure 14. TANF volunteers working along apportion of the SFAR trail on Preserve lands

hours to assist with planting native species, controlling weeds, and completing three seed collections. Several of the tasks conducted by the TANF members during the spring were cancelled due to weather conditions, but activities continued throughout the year whenever favorable conditions allowed for field work and people were available.

During June volunteers from the TANF group joined Preserve interns Sophia Weinmann and Julie Wynia in collecting seeds at the Penny Lane unit of the Preserve for the BLM's Seeds of Success program. Species collected included white globe lily and Sonoma sage. The group also pulled out weed patches of yellow star thistle and skeleton weed at the Penny Lane and other units of the Preserve (Figure 15). Details and photos of the TANF events and other volunteer activities were included with previous 2010 and 2011 CVPIA reports.

Figure 15. TANF volunteers pulling weeds at the Preserve

Students and interns contributed to the diverse management and restoration tasks at the Preserve. Current sources of interns and student volunteers include the Center for Plant Conservation, the Chicago Botanic Garden, UC Davis, and the Cosumnes River and American River Community Colleges. The Preserve staff will continue to recruit, mentor, and cultivate these partnerships with universities, colleges, and Research Institutes.

During 2010 and 2011, Preserve staff assisted researcher Dylan Burge with collecting soil samples and vegetative materials for a Pine Hill ceanothus genetic study. Research activities were conducted during 2010 by volunteer Dylan Burge. Mr. Burge is a PhD candidate with the Department of Biology at Duke University, in North Carolina, currently conducting a genetic study of the federally listed Pine Hill ceanothus. The Preserve staff and interns assisted Mr. Burge with his research during multiple 2010 field work sessions, which included collecting and shipping soil samples for a Pine Hill ceanothus genetic study during Mr. Burge's last field visit in July 2010. Also during 2010, Preserve staff assisted environmental researchers with the California Regional Water Quality Control Board that are currently developing a mercury control program for the American River watershed. The Preserve staff assisted Stephen Louie collecting water from the South Fork American River near its confluence with Weber Creek, in

the Salmon Falls unit of the Preserve. Neighbor Jon Olson of the Kanaka Valley assisted by allowing the research team to gain access to Preserve lands through Mr. Olson's private property. Researchers are looking to document heavy metals contaminants in the water. The Preserve staff will receive a copy of the results and report.

During 2011, PHP staff coordinated with researcher Jackson Shedby and provided information to assist Mr. Shedby with collection of California horned lizard fecal samples on Preserve lands. Important implications from this study for the rare plants include learning about possible pollinator ants being the main source of the lizard's food. Some ants play an important role pollinating rare plants and both harvesting and distributing rare plant seeds. Unlike previous years when Mr. Shedby and Preserve staff had found and documented the presence of this species on PHP, 2011 turned out to be a year when observation of California horned lizards was almost non-existent. Mr. Shedby is exploring possibilities of continuing the study during future years either on PHP lands or other areas within the Sierra foothills that may guarantee the presence of this species.

Throughout 2011 PHP staff also assisted graduate student Sandy Namoff (former PHP intern) with a morphological study of Stebbins' morning-glory. Ms. Namoff presented results for her "Anatomical and Morphological Evidence for a new taxon of Calystegia (Convolvulaceae)" at the January 2012 CNPS Conservation Conference. Ms. Namoff is expanding her morphological study to include genetic analysis of Stebbins' morning-glory to compare it with a potential new morning-glory taxon.

In 2011, Dr. Earl Alexander's paper "Gabbro Soils and Plant Distributions on Them", was published by the Madrono Journal (Vol. 58, No. 2). The PHP staff assisted Dr. Alexander with field work sessions and reviewed and provided input to the manuscript previous to its publication. Also during 2011, results from Mr. Burge's Pine Hill ceanothus genetic study were published in the latest issue of Madrono (Vol. 58, No. 1). The title of the paper is "Edaphic Ecology and Genetics of the Gabbro-Endemic Shrub *Ceanothus roderickii* (RHAMNACEAE)". Two additional papers from this research are being published and prepared, including "Diversification of the genus *Ceanothus* (Rhamnaceae) in the California Floristic Province", currently in press with the Journal of Plant Sciences.

Preserve staff will continue to facilitate research projects to fill gaps in rare plant knowledge and to direct management practices to enhance rare plant habitat at the Preserve. Current scientific projects on Preserve lands include rare plant genetic studies and evaluation of factors that influence rare plant distribution. The Preserve staff will continue to coordinate with universities and research centers to conduct activities on Preserve lands. Preserve staff will also assist with scientific research and facilitate BLM

permitting processes. This is an on-going task that has high priority and will be opportunistically pursued as the occasion arises. Implementation of this task will continue to take place during future years.

This concludes the final report for the period of July 2009 through March 2012. The BLM and the Preserve recognize the contribution of the BOR and FWS through CVPIA HRP in successfully implementing E&O activities for the Pine Hill Preserve. Thank you very much for helping the Preserve accomplish the mission of conserving in perpetuity the rare plants species and plant communities of the western El Dorado County gabbro soil formation. For questions or comments regarding this report, please contact Graciela Hinshaw at ghinshaw@blm.gov or at (916) 941-3134.